ADDITIONAL

Service Manual

PIONEER®

ORDER NO.
ARP-494-0

STEREO AMPLIFIER

SA-950

MODEL SA-950 COMES IN SEVEN VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
HE	AC220V, 240V (switchable)	European continent model
KU	AC 120V only	U.S.A. model
KC	AC120V only	Canada model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
S/G	AC110V, 120V, 220V, 240V (switchable)	U.S. Military model
YP	AC240V only	Australia model
HEZ	AC220V, 240V (switchable)	West Germany model

- **The basic performance of the model SA-950 is the same as the model SA-940. Please refer to the SA-940/KU service manual (ARP-298-0) with the exception of this service manual.**
- **The model SA-950 differs from the model SA-940 in style (color).**

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FOR HE TYPE

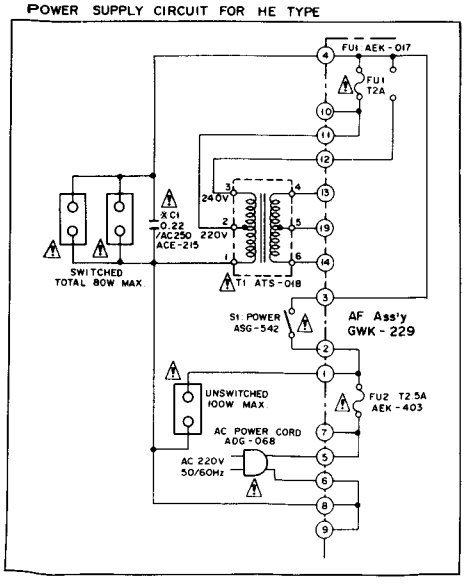
The SA-950/HE type is the same as the SA-940/KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		SA-940/KU	SA-950/HE	
	Front panel ass'y	ANM-395	ANM-547	
	Push knob ass'y A	AAD-677	.....	
	Push knob ass'y B	AAD-694	.....	
	Push knob ass'y C	AAD-646	.....	
	Push knob A (POWER, FUNCTION)	.....	AAD-634	
	Push knob B (SPEAKERS)	.....	AAD-635	
	Push knob D (CD/VIDEO)	.....	AAD-637	
	Push knob C (LOUDNESS, ADAPTOR/ TAPE 2)	.....	AAD-636	
⚠ ★	Power transformer (120V)	ATS-004		
	(220V/240V)	.....	ATS-018	
⚠ ★★	FU1 Fuse (5A)	AEK-308	.....	
	(2A)	.....	AEK-017	
⚠ ★★	FU2 Fuse (2.5A)	.....	AEK-403	
★★	Q1, Q2 Transistor	2SC2525/A/-B,G,X	2SC3546-O,R (2SC2525/A/-B,G,X)	hfe of Q1~Q4 should have the same value.
★★	Q3, Q4 Transistor	2SA1075/A/-B,G,X	2SA1389-O,R (2SA1075/A/-B,G,X)	hfe of Q1~Q4 should have the same value.
⚠	Push switch (POWER)	ASG-541	ASG-542	
⚠	AC socket (AC OUTLET)	AKP-501	AKP-502	
	AC power cord	ADG-073	ADG-068	
	Operating instructions (English)	ARB-544	.....	
	(English/French/German/Itarian)	.....	ARE-091	
	Packing case	AHE-217	AHE-300	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR HE TYPE



Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Take out the fuse (AEK-017) from the fuse assembly.
4. Re-install the fuse in the correct voltage indication (see Fig. 1).
5. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

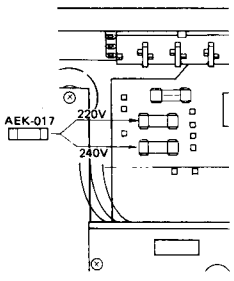


Fig. 1

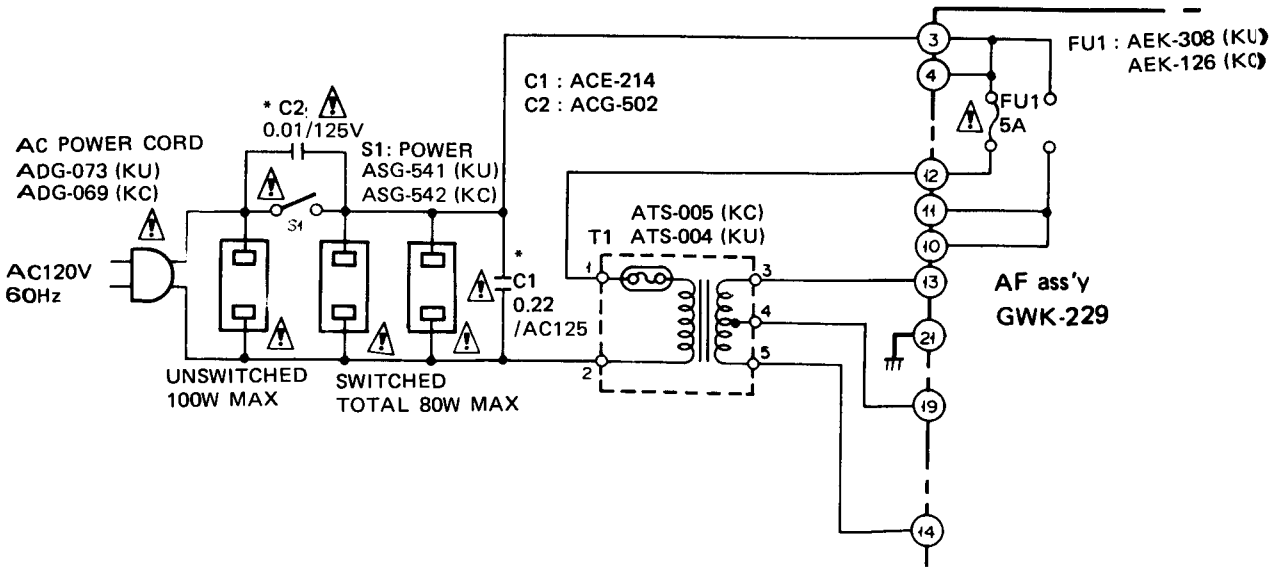
FOR KU AND KC TYPES

- The SA-950/KU, KC types are the same as the SA-940/KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.			Remarks
		SA-940/KU	SA-950/KU	SA-950/KC	
	Front panel ass'y	ANM-395	ANM-547	ANM-547	
	Push knob ass'y A	AAD-677	.....	.....	
	Push knob ass'y B	AAD-694	.....	.....	
	Push knob ass'y C	AAD-646	.....	.....	
⚠ ★	T1 Power transformer (120V)	ATS-004	ATS-004	ATS-005	
⚠ ★★	FU1 Fuse (5A)	AEK-308	AEK-308	AEK-126	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-541	ASG-542	
⚠	AC socket (AC OUTLETS)	AKP-501	AKP-501	AKP-504	
⚠	AC power cord	ADG-073	ADG-073	ADG-069	
	Strain relief	.....	.....	AEC-327	
★★	Q1, Q2 Transistor	2SC2525/A/-B,G,X	2SC3546-O,R (2SC2525/A/-B,G,X)	2SC3546-O,R (2SC2525/A/-B,G,X)	hfe of Q1~Q4 should have the same value.
★★	Q3, Q4 Transistor	2SA1075/A/-B,G,X	2SA1389-O,R (2SA1075/A/-B,G,X)	2SA1389-O,R (2SA1075/A/-B,G,X)	
	Operating instructions	ARB-544	ARB-588	ARB-588	
	Packing case	AHE-217	AHE-299	AHE-300	
	Push knob A (POWER, FUNCTION)	.....	AAD-634	AAD-634	
	Push knob B (SPEAKERS)	.....	AAD-635	AAD-635	
	Push knob C (CD/VIDEO)	.....	AAD-637	AAD-637	
	Push knob D (LOUDNESS, ADAPTOR/ TAPE 2)	.....	AAD-636	AAD-636	

Schematic Diagram



FOR S AND S/G TYPES

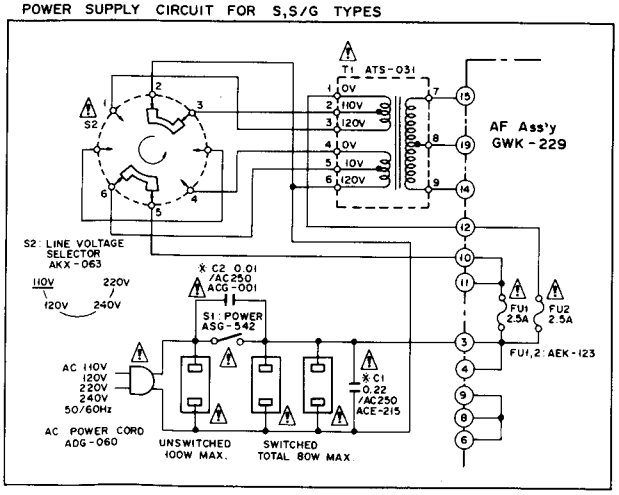
The SA950/S, S/G types are the same as the SA-940/KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.			Remarks
		SA-940/KU	SA-950/S	SA-950/S/G	
	Front panel ass'y	ANM-395	ANM-547	ANM-547	
	Push knob ass'y A	AAD-677	.....	.....	
	Push knob ass'y B	AAD-694	.....	.....	
	Push knob ass'y C	AAD-646	.....	.....	
⚠ ★	T1 Power transformer (120V)	ATS-004	.....	.....	
	(110V, 120V, 220V, 240V)	.....	ATS-031	ATS-031	
⚠ ★★	FU1 Fuse (5A)	AEK-308	.....	.....	
	(2.5A)	.....	AEK-123	AEK-123	
⚠ ★★	FU2 Fuse (2.5A)	.....	AEK-123	AEK-123	
★★	Q1, Q2 Transistor	2SC2525/A/-B,G,X	2SC3546-O,R (2SC2525/A/-B,G,X)	2SC3546-O,R (2SC2525/A/-B,G,X)	hfe of Q1~Q4 should have the same value.
★★	Q3, Q4 Transistor	2SA1075/A/-B,G,X	2SA1389-O,R (2SA1075/A/-B,G,X)	2SA1389-O,R (2SA1075/A/-B,G,X)	
⚠	S2 Line voltage selector	.....	AKX-063	AKX-063	
⚠	C1 (0.22/AC125V)	ACE-214	.....	.....	
	(0.22/AC250V)	.....	ACE-215	ACE-215	
⚠	C2 (0.01/AC125V)	ACG-502	.....	.....	
	(0.01/AC250V)	.....	ACG-001	ACG-001	
	Screw (3 x 10)	.....	VTZ30P100FZK	VTZ30P100FSK	for line voltage selector
⚠	AC power cord	ADG-073	ADG-060	ADG-060	
	Operating instructions (English)	ARB-544	ARB-588	ARB-588	
	(Spanish)	.....	ARC-065	.....	
	Packing case	AHE-217	AHE-300	AHE-300	
	Push knob A (POWER, FUNCTION)	.....	AAD-634	AAD-634	
	Push knob B (SPEAKERS)	.....	AAD-635	AAD-635	
	Push knob C (CD/VIDEO)	.....	AAD-637	AAD-637	
	Push knob D (LOUDNESS, ADAPTOR/ TAPE 2)	.....	AAD-636	AAD-636	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR S,S/G TYPES



FOR YP TYPE

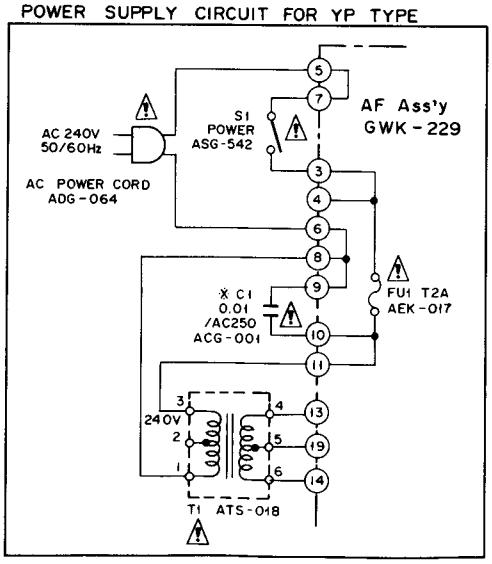
The SA-950/YP type is the same as the SA-940/KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		SA-940/KU	SA-950/YP	
	Front panel ass'y	ANM-395	ANM-547	
	Push knob ass'y A	AAD-677	.....	
	Push knob ass'y B	AAD-694	.....	
	Push knob ass'y C	AAD-646	.....	
⚠ ★	T1 Power transformer (120V)	ATS-004	.....	
	(240V)	.....	ATS-018	
⚠ ★★	FU1 Fuse (5A)	AEK-308	.....	
	(2A)	.....	AEK-017	
★★	Q1, Q2 Transistor	2SC2525/A/-B,G,X	2SC3546-O,R (2SC2525/A/-B,G,X)	hef of Q1~Q4 should have the same value.
★★	Q3, Q4 Transistor	2SA1075/A/-B,G,X	2SA1389-O,R (2SA1075/A/-B,G,X)	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 (0.22/AC125V)	ACE-214	.....	
	(0.01/AC250V)	.....	ACG-001	
	C2 (0.01/AC125V)	ACG-502	.....	
⚠	AC socket (AC OUTLET)	AKP-501	.....	
⚠	AC power cord	ADG-073	ADG-064	
	Operating instructions (English)	ARB-544	ARB-588	
	Packing case	AHE-217	AHE-300	
	Push knob A (POWER, FUNCTION)	.....	AAD-634	
	Push knob B (SPEAKERS)	.....	AAD-635	
	Push knob D (CD/VIDEO)	.....	AAD-637	
	Push knob C (LOUDNESS, ADAPTOR/ TAPE 2)	.....	AAD-636	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR YP TYPE



FOR HEZ TYPE

The SA-950/HEZ type is the same as the SA-940/KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		SA-940/KU	SA-950/HEZ	
	AF ass'y	GWK-229	GWK-232	
	Front panel ass'y	ANM-395	ANM-547	
	Push knob ass'y A	AAD-677	.....	
	Push knob ass'y B	AAD-694	.....	
	Push knob ass'y C	AAD-646	.....	
⚠ ★	T1 Power transformer (120V)	ATS-004	.....	
	(200V/240V)	.....	ATS-018	
⚠ ★★	FU1 Fuse (5A)	AEK-308	.....	
	(2A)	.....	AEK-017	
⚠ ★★	FU2 Fuse (2.5A)	.....	AEK-403	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C3~C6	.....	CQMA472K50	
⚠	C7	.....	CQMA333K50	
⚠	AC socket (OUTLET)	AKP-501	AKP-502	
	Screw	.....	ABA-115	
⚠	AC power cord	ADG-073	ADG-068	
	Operating instructions (ENGLISH)	ARB-544	.....	
	Operating instructions (GERMAN)	.....	ARC-066	
	Packing case	AHE-217	AHE-300	
★★	Q1, Q2 Transistor	2SC2525/A/-B,G,X	2SC3546-O,R (2SC2525/A/-B,G,X)	hef of Q1~Q4 should have the same value.
★★	Q3, Q4 Transistor	2SA1075/A/-B,G,X	2SA1389-O,R (2SA1075/A/-B,G,X)	
	Push knob A (POWER, FUNCTION)	.....	AAD-634	
	Push knob B (SPEAKERS)	.....	AAD-635	
	Push knob D (CD/VIDEO)	.....	AAD-637	
	Push knob C (LOUDNESS, ADAPTOR/ TAPE 2)	.....	AAD-636	

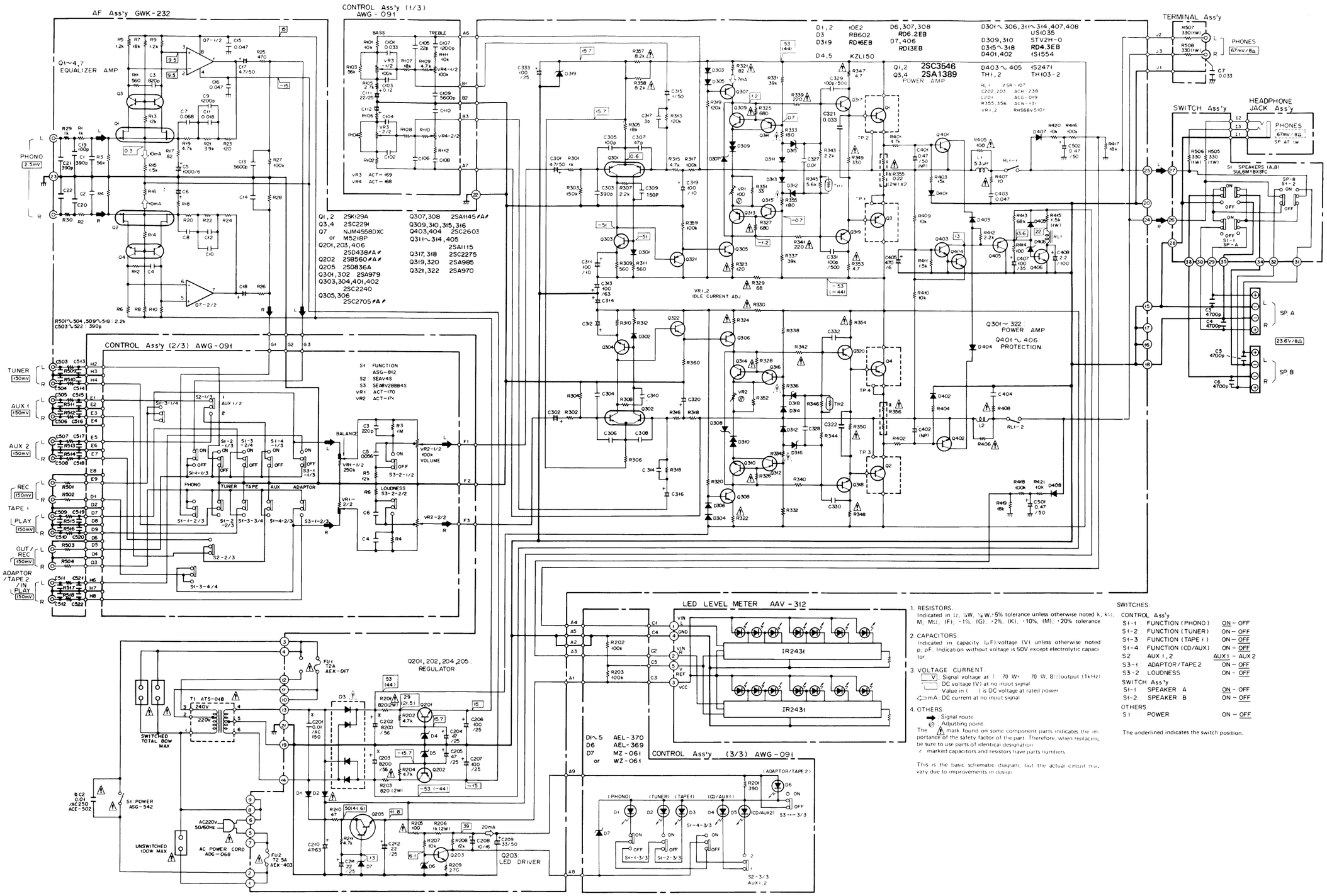
AF Assembly (GWK-232)

The AF assembly GWK-232 (for SA-950/HEZ type) is the same as the GWK-229 (for SA-940/KU type) with the exception of the following parts.

Mark	Symbol & Description	Part No.		Remarks
		GWK-229	GWK-232	
★	D315–D318	MZ-043	RD4.3EB (HZ4.3EB)	
★	D7, D405	MZ-130	RD13EB (HZ13EB)	
	C19, C20	.....	CCDSL 101J 50	
	C1, C2	CCDSL 221J 50	CKDYB 391K 50	
	C21, C22, C503–C522	.....	CKDYB 391K 50	
	C303, C304	CCDSL 121J 50	CKDYB 391K 50	
	C317, C318	CCDSL 060D 50	CCDSL 030C 50	
⚠	R405, R406	RD¼PMFL 100J	RD¼PMFL 101J	
	R1, R2	RD¼PM 100J	RD¼PM 102J	
	R29, R30	.....	RD1/8PM 102J	
	R509–R516	RD1/8PM 331J	RD1/8PM 222J	
	R517, R518	.....	RD1/8PM 222J	

SCHEMATIC DIAGRAM

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



1. RESISTORS.
Indicated in Ω, ¼W, ⅙W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K), ±10%, (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
V: Signal voltage at (70 W+ 70 W, 8Ω) output (1kHz)
DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power
mA: DC current at no input signal

4. OTHERS.
Signal route.
Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
★ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

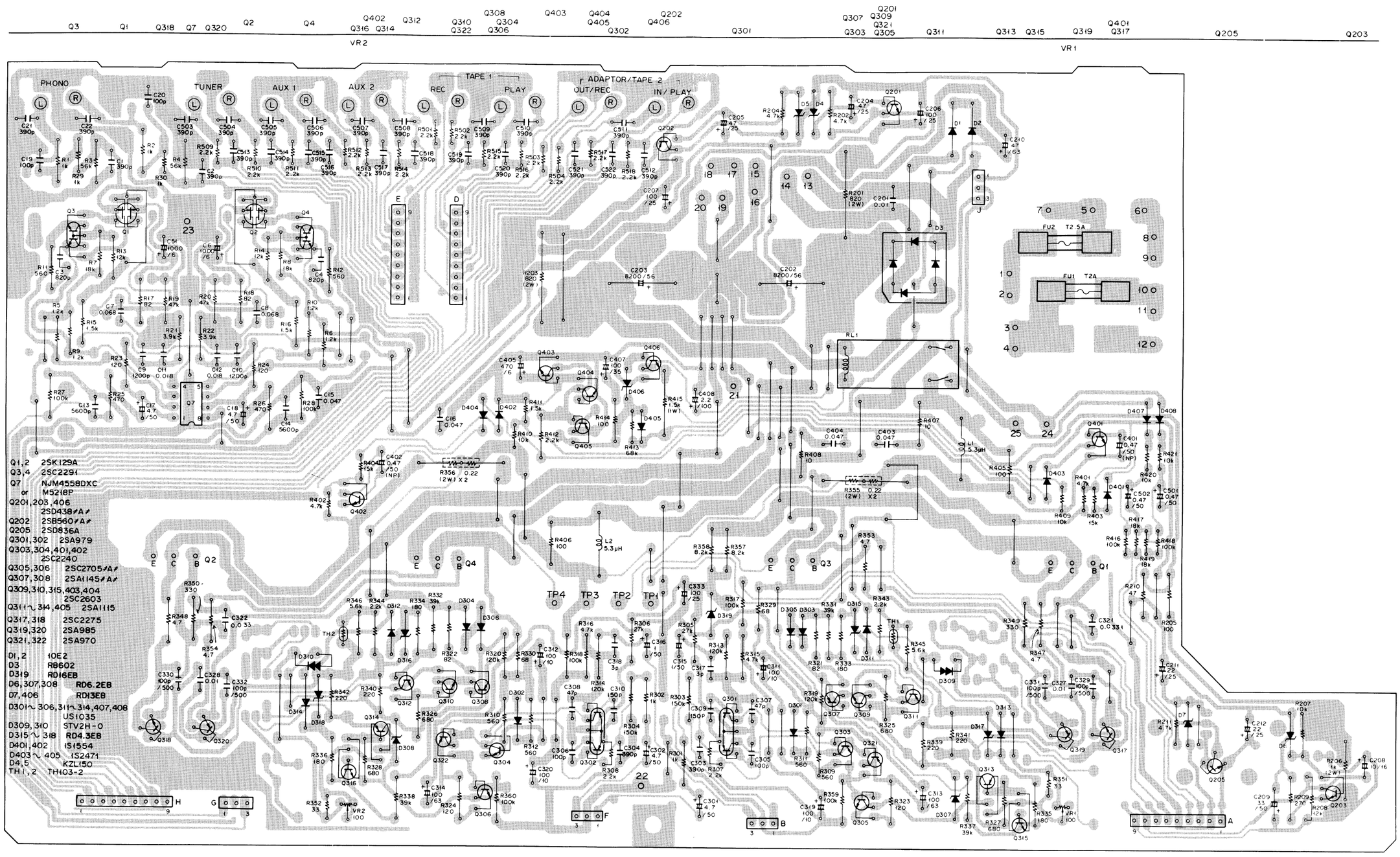
SWITCHES:

CONTROL Ass'y		
S1-1	FUNCTION (PHONO)	ON – OFF
S1-2	FUNCTION (TUNER)	ON – OFF
S1-3	FUNCTION (TAPE 1)	ON – OFF
S1-4	FUNCTION (CD/AUX)	ON – OFF
S2	AUX 1, 2	AUX1 – AUX2
S3-1	ADAPTOR/TAPE 2	ON – OFF
S3-2	LOUDNESS	ON – OFF
SWITCH Ass'y		
S1-1	SPEAKER A	ON – OFF
S1-2	SPEAKER B	ON – OFF
OTHERS		
S1	POWER	ON – OFF

The underlined indicates the switch position.

P.C. BOARD PATTERNS

AF Assembly (GWK-232)



PIONEER

Service Manual

CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS

ORDER NO.
ARP-298-0

STEREO AMPLIFIER

SA-940

MODEL SA-940 COMES IN SEVEN VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	AC120V only	U.S.A. model
HE	AC220V, 240V (switchable)	European continent model
HB	AC220V, 240V (switchable)	United Kingdom model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
S/G	AC110V, 120V, 220V, 240V (switchable)	U.S. Military model
YP	AC240V only	Australia model
HEZ	AC220V, 240V (switchable)	West Germany model

- **This service manual is applicable to the KU type. For servicing of HE, HB, S/G, S and YP types, please refer to the pp. 25~28. For servicing of HEZ type, please refer to the Additional Service Manual.**
- **Ce manuel d'instruction se refère au mode de réglage, in français.**
- **Este manual de servicio trata del método de ajuste escrito en español.**

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1. SPECIFICATIONS

Amplifier Section

Continuous Power Output is 70 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.009% total harmonic distortion.

DIN, Continuous Power Output at 1 kHz
(both channels driven)
T.H.D. 1%, 8 ohms ..... 87 watts per channel
Total Harmonic Distortion (20 Hertz to 20,000 Hertz, 8 ohms, from CD/AUX)
continuous rated power output ..... No more than 0.009%
70 watts per channel power output ..... No more than 0.009%
Damping Factor (1,000 Hertz, 8 ohms)
..... 60
Input (Sensitivity/Impedance)
PHONO ..... 2.5 mV/50 kilohms
TUNER, CD/AUX, TAPE PLAY, ADAPTOR IN
..... 150 mV/50 kilohms
Phono Overload Level (T.H.D. 0.1%, 1,000 Hz)
PHONO ..... 150 mV
Output (Level)
TAPE REC, ADPTOR OUT ..... 150 mV
Speaker ..... 6 — 16 Ω
Frequency Response
PHONO (RIAA Equalization)
..... 20 Hz to 20,000 Hz ±0.2 dB
TUNER, CD/AUX, TAPE PLAY, ADAPTOR
..... 10 Hz to 70,000 Hz $^{+0}_{-3}$ dB
Tone Control
BASS ..... ±10 dB (100 Hz)
TREBLE ..... ±10 dB (10 kHz)
Loudness Contour (Volume control set at −40 dB position)
..... +6 dB (100 Hz), +3 dB (10 kHz)
Hum and Noise (IHF, short circuited A network)
PHONO ..... 86 dB
TUNER, CD/AUX, TAPE PLAY, ADAPTOR IN
..... 102 dB
Hum and Noise (DIN, continuous power/50 mW)
PHONO ..... 75 dB/61 dB
TUNER, CD/AUX, TAPE PLAY, ADAPTOR IN
..... 88dB/62 dB

Miscellaneous

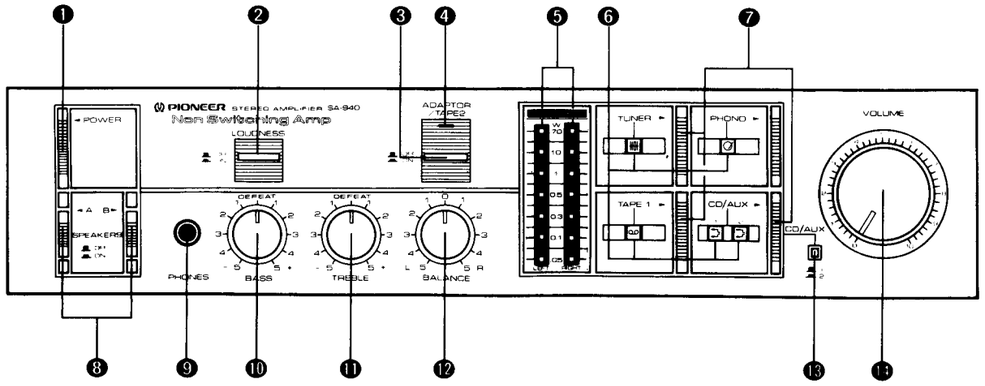
Power Requirements
KU, KC models . . . . . AC 120 Volts, 60 Hz
S, S/G models
~AC 110V/120 V/220 V/240 V (switchable), 50/60 Hz
HB,YP models . . . . . a.c. 240 Volts~, 50 Hz
Power Consumption
KU, KC models . . . . . 190 Watts (max.)
S, S/G models . . . . . 160 Watts (max.)
HB,YP models . . . . . 450 Watts (max.)
Dimensions ..... 420 (W) x 98 (H) x 287 (D) mm
16-9/16 (W) x 3-7/8 (H) x 11-5/16 (D) in
Weight (without package) ..... 6.5 kg (14 lb 5 oz)

Furnished Parts

Operating Instructions 1

NOTE:
Specifications and design subject to possible modifications without notice.

2. FRONT PANEL FACILITIES



❶ POWER SWITCH

When this switch is pushed, the power is supplied (the function indicators light). When it is pushed again, the power is switched off.

❷ LOUDNESS SWITCH

Push this switch to the "ON" position for low-volume sound listening. The bass and treble are emphasized and you can sit back and listen to a dynamic sound even under low-volume conditions.

❸ ADAPTOR/TAPE 2 SWITCH

This is used when operating an adaptor (such as a tape creating amplifier) or when playing back a tape in a tape deck connected to the rear panel ADAPTOR/TAPE 2 terminals.

❹ ADAPTOR/TAPE 2 INDICATOR

This lights when the ADAPTOR/TAPE 2 switch is set to ON.

❺ OUTPUT POWER INDICATORS

The left and right indicators show the output level (in watts) when a speaker system with an 8-ohm nomimal impedance has been connected to the unit. "L" indicates the left channel output level and "R" the right channel.

❻ FUNCTION INDICATORS

The indicator corresponding to the function switch which has been pushed lights. Each indicator has a symbol: " ◯ " for PHONO, " ⫼ " for TUNER, " ⊃ " for CD/AUX and " ⚮ " for TAPE 1.

❼ FUNCTION SWITCHES

PHONO: Used when playing records on a turntable connected to the rear panel PHONO terminals.

TUNER: Used when listening to broadcasts on the tuner connected to the rear panel TUNER terminals.

CD/AUX: Used when operating a TV tuner or compact disc player etc. connected to the rear panel CD/AUX terminals.

TAPE 1: Used when playing back tapes in the tape deck connected to the rear panel TAPE 1 terminals.

❽ SPEAKER SELECTOR SWITCHES

Select the switch that corresponds to the speaker systems through which the sound is to be heard.
When the switch is pressed, the sound is heard through the speaker systems selected.

A: The sound is heard from the speakers connected to the speaker A terminals on the rear panel.

B: The sound is heard from the speakers connected to the speaker B terminals on the rear panel.

No sound will be heard when SPEAKERS A and B switches are both released. This is the position at which the sound can be heard through the headphones.

NOTE:
No sound will be heard through the speakers when both the A and B switches are depressed if only one set of speakers has been connected to either the A or B SPEAKERS terminals.

❾ PHONES JACK

Plug the headphones into this jack securely for private listening.

NOTE:
Make it a rule to turn down the volume before plugging in the headphones. A loud sound can hurt your ears.

❿ BASS CONTROL

This is used to adjust the bass sound.
When rotated clockwise from the center DEFEAT position, the bass is emphasized; when rotated counterclockwise, the bass is attenuated.

⓫ TREBLE CONTROL

This is used to adjust the treble sound.
When rotated clockwise from the center DEFEAT position, the treble is emphasized; when rotated counterclockwise, the treble is attenuated.

⓬ BALANCE CONTROL

This is normally kept at the "0" position. It should be adjusted when the left/right stereo balance has become lopsided. Rotate the control to the left when the right channel sound is too loud; rotate it to the right when the left channel sound is too loud.

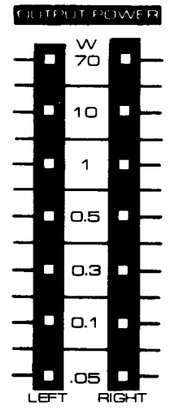
⓭ CD/AUX 1, 2 SELECTOR SWITCH

Use this to select the component which has been connected to the auxiliary (CD/AUX 1, 2) terminals on the rear panel.

⓮ VOLUME CONTROL

This is used to adjust the sound volume of the speakers and headphone. No sound will be heard when the control has been set to the "0" position. Rotate the control clockwise to increase the sound level.

OUTPUT POWER INDICATORS

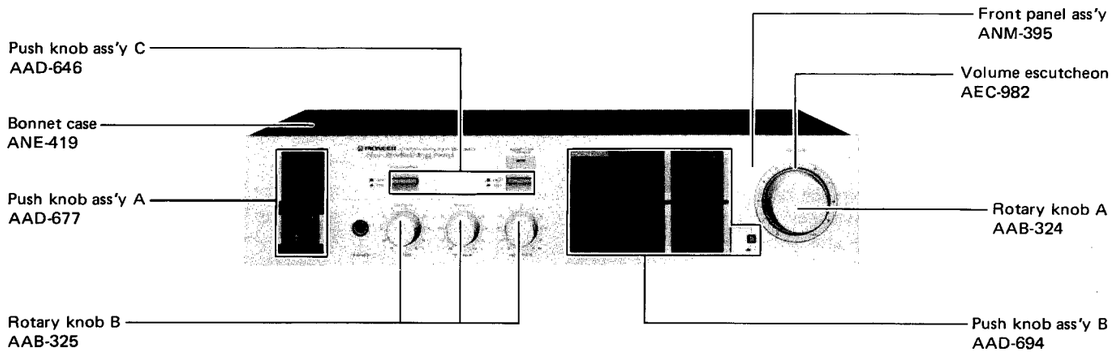


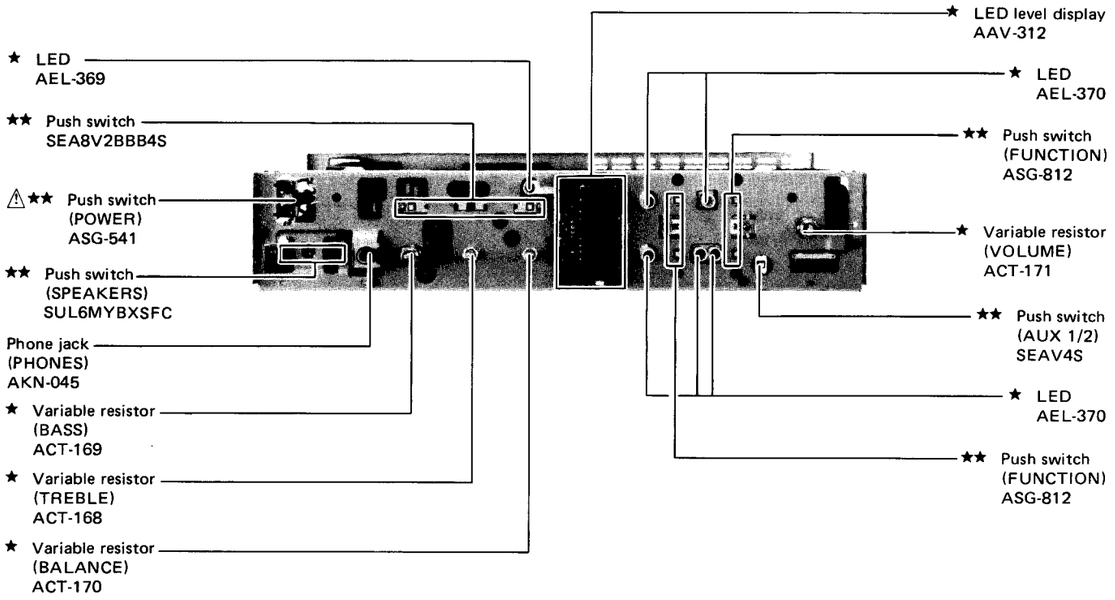
The output power indicators show the output level when speaker systems with a nominal impedance of 8 ohms have been connected to the rear panel speaker terminals. The output level (peak value) is indicated in watts by the scale units. Since a logarithmic compression scale is used, outputs ranging from the weak (0.05 W) to the strong (70 W) can be displayed without selecting the range.
During actual play the impedance of the speaker systems changes in accordance with the frequency. For this reason, the value indicated is not an exact representation of the output but only a rough guide.

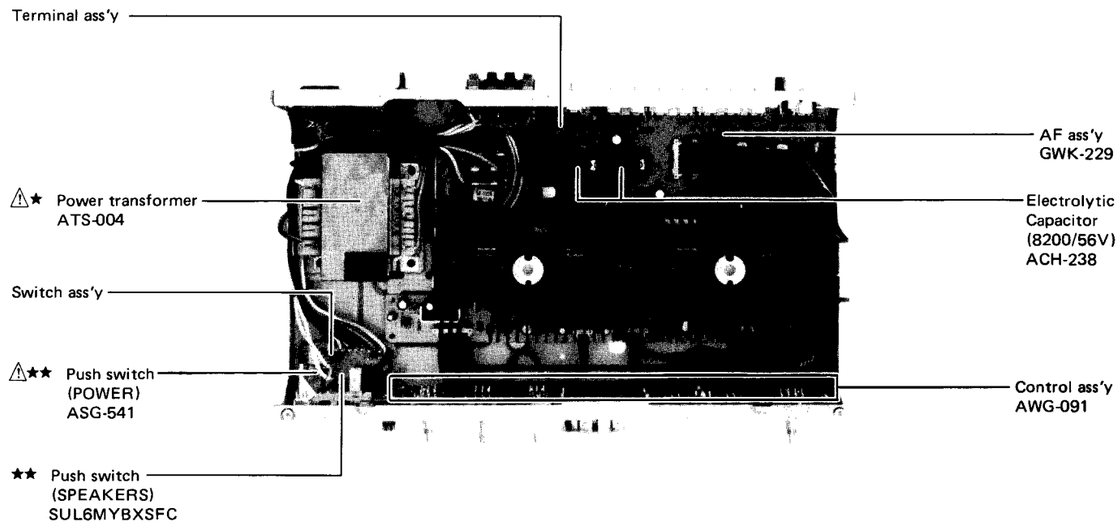
3. PARTS LOCATION

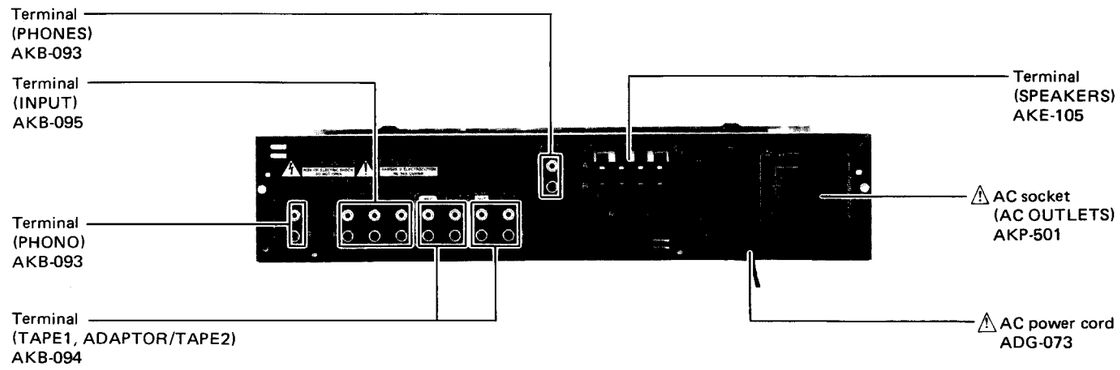
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ *GENERALLY MOVES FASTER THAN* ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

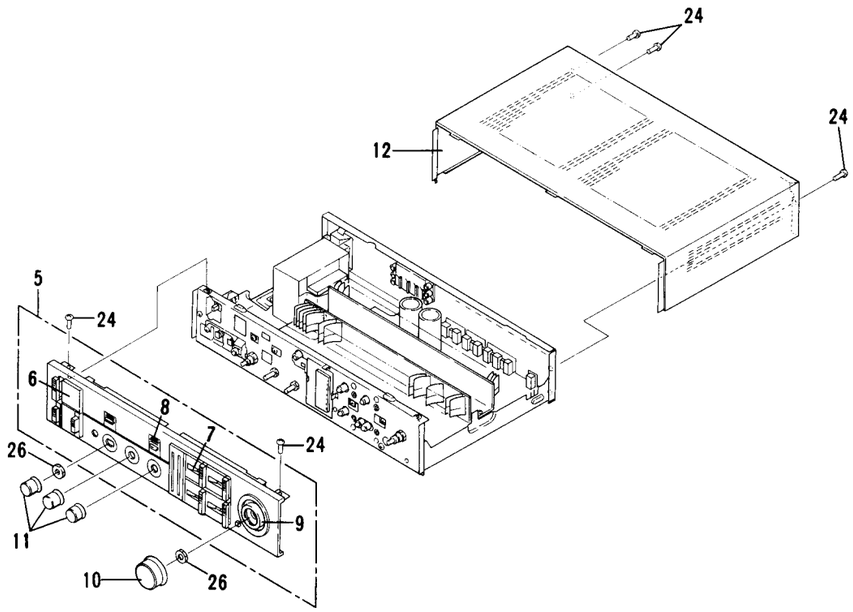


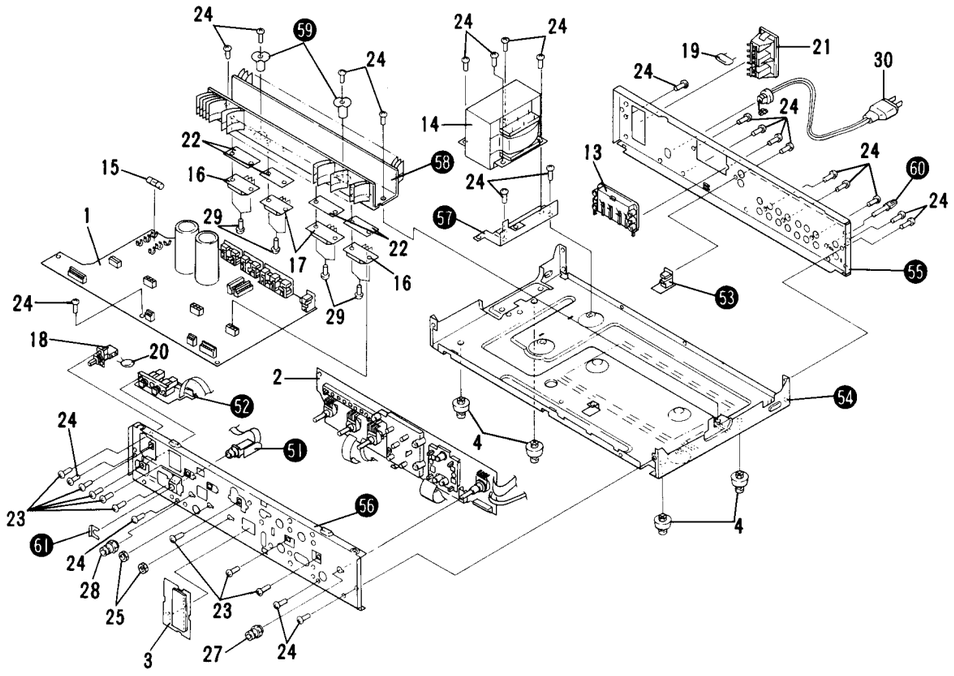






4. EXPLODED VIEWS AND PARTS LIST



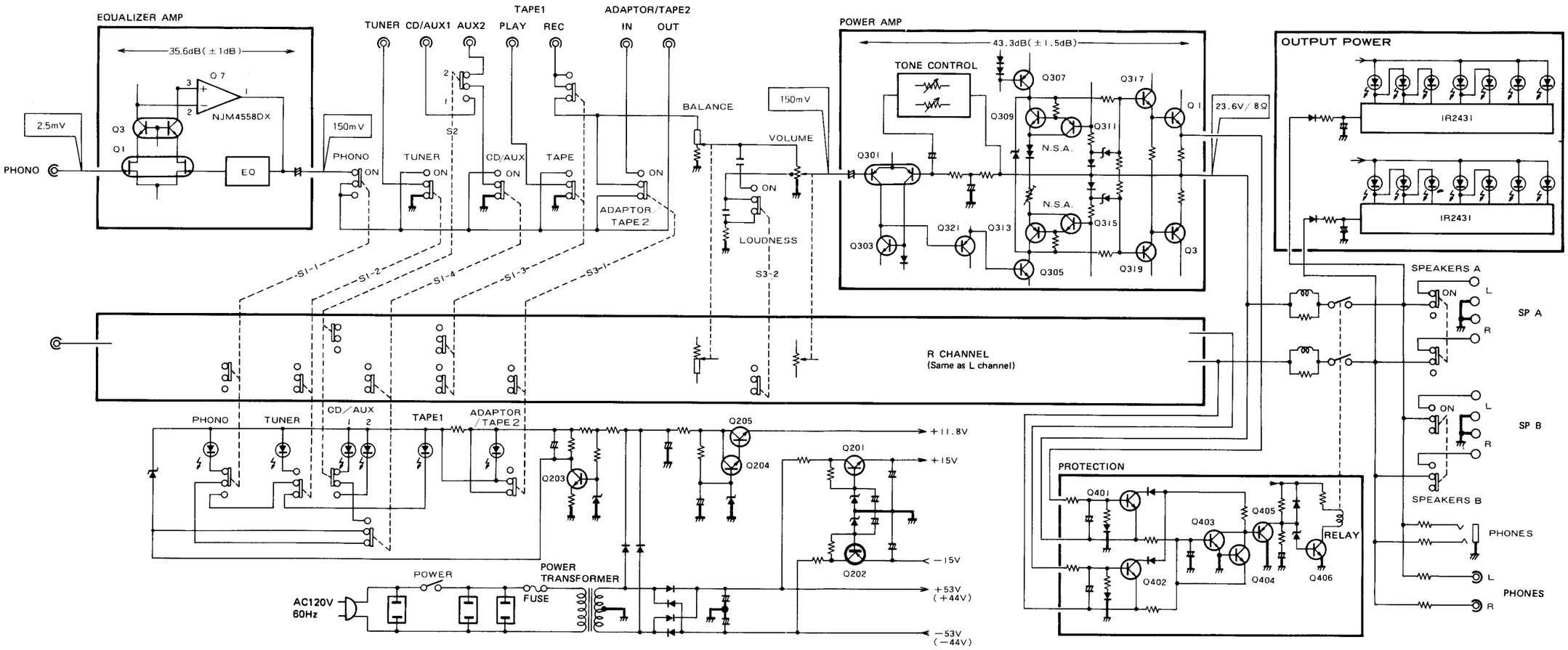


NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Mark	No.	Part No.	Description
	1.	GWK-229	AF ass'y
	2.	AWG-091	Control ass'y
	3.	AAV-312	LED level display
	4.	AEC-784	Foot ass'y
	5.	ANM-395	Front panel ass'y
	6.	AAD-677	Push knob ass'y A
	7.	AAD-694	Push knob ass'y B
	8.	AAD-646	Push knob ass'y C
	9.	AEC-982	Volume escutcheon
	10.	AAB-324	Rotary knob A
	11.	AAB-325	Rotary knob B
	12.	ANE-419	Bonnet case
	13.	AKE-105	Terminal (SPEAKERS)
⚠ ★	14.	ATS-004	Power transformer
⚠★★	15.	AEK-308	Fuse (5A)
★★	16.	2SC2525/A/-B* (2SC2525/A/-G) (2SC2525/A/-X)	Transistor
★★	17.	2SA1075/A/-B* (2SA1075/A/-G) (2SA1075/A/-X)	Transistor
		*hfe should have the same value.	
⚠★★	18.	ASG-541	Push switch (POWER)
⚠	19.	ACE-214	Ceramic capacitor
⚠	20.	ACG-502	Ceramic capacitor
⚠	21.	AKP-501	AC socket (AC OUTLET)
	22.	AEC-756	Mica wafer
	23.	PMZ30P060FMC	Screw (3x6)
	24.	BBZ30P080FZK	Screw (3x8)
	25.	NK70FUC	Nut
	26.	NKX1FUC	Nut
	27.	ABN-074	Guide nut A
	28.	ABN-075	Guide nut B
	29.	ABA-258	Screw
	30.	ADG-073	AC power cord
	51.		Headphone jack ass'y
	52.		Switch ass'y
	53.		Terminal ass'y
	54.		Chassis
	55.		Rear panel
	56.		Panel stay
	57.		Frame
	58.		Heat sink
	59.		Heat cap
	60.		Terminal (GND)
	61.		Mount plate

5. BLOCK DIAGRAM



6. P.C. BOARDS CONNECTION DIAGRAM

HEADPHONE JACK Ass'y

PHONES

SWITCH Ass'y

SP. A

SP. B

23.6V/8Ω

SPEAKERS

AF Ass'y (GWK-229)

CONTROL Ass'y (AWG-091)

BASS

TREBLE

BALANCE

LOUDNESS

ADAPTOR

(TAPE 1)

AUX

(CD/AUX 1)

(CD/AUX 2)

PHONO

(PHONO)

TUNER

(TUNER)

VOLUME

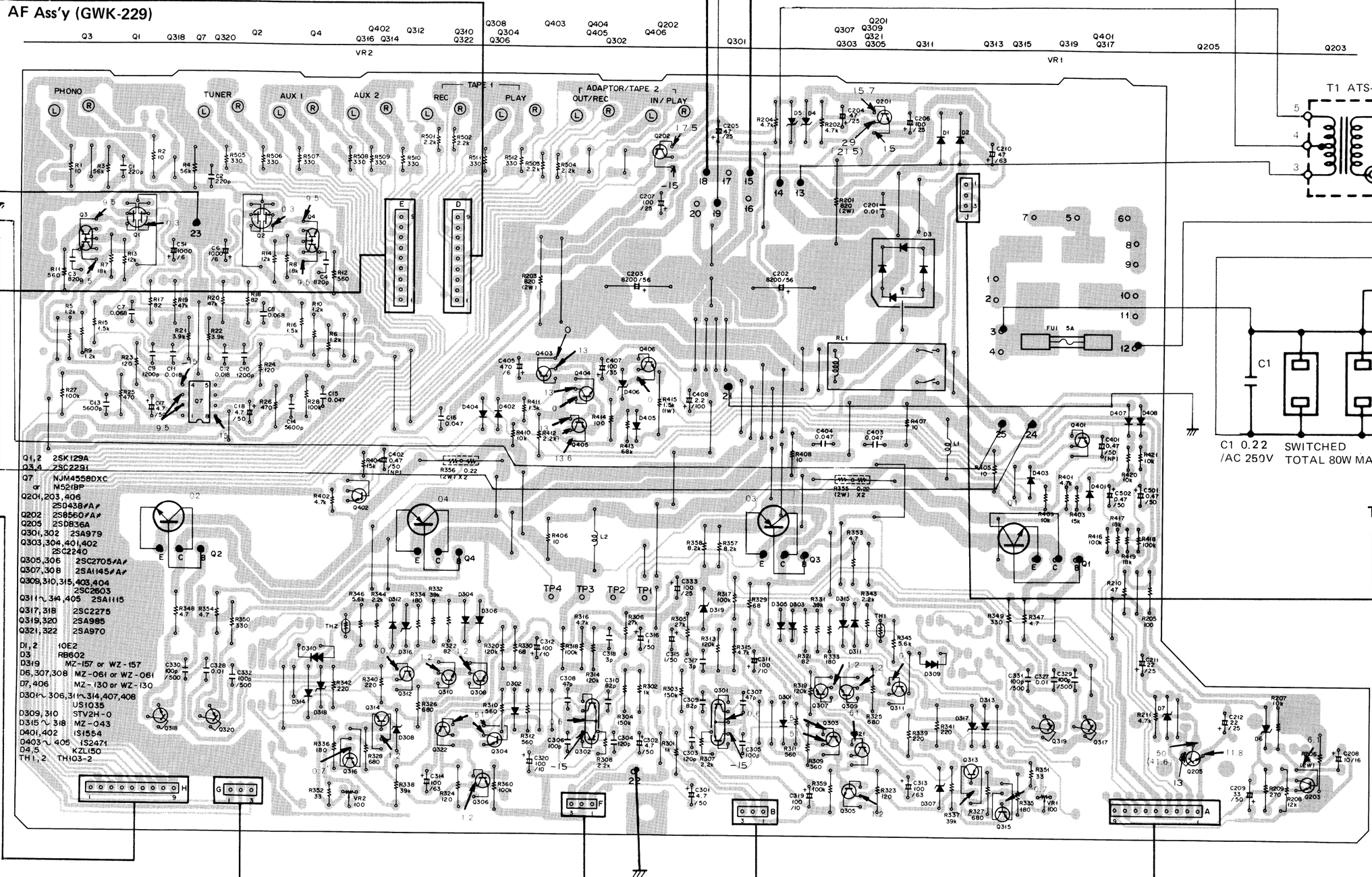
LED LEVEL METER AAV-312

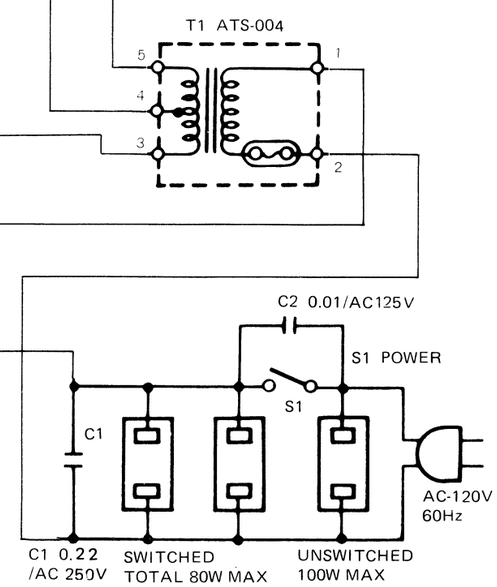
IR2431

IR2431

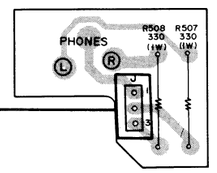
Q1,2	2SK129A
Q3,4	2SC2291
Q7	NJM4558DXC or M5218P
Q201,203,406	2SD438#A#
Q202	2SB560#A#
Q205	2SD836A
Q301,302	2SA979
Q303,304,401,402	2SC2240
Q305,306	2SC2705#A#
Q307,308	2SA1145#A#
Q309,310,315,403,404	2SC2603
Q311~314,405	2SA1115
Q317,318	2SC2275
Q319,320	2SA985
Q321,322	2SA970
D1,2	10E2
D3	RB602
D319	MZ-157 or WZ-157
D6,307,308	MZ-061 or WZ-061
D7,406	MZ-130 or WZ-130
D301~306,311~314,407,408	US1035
D309,310	STV2H-0
D315~318	MZ-043
D401,402	1S1554
D403~405	1S2471
D4,5	KZL150
TH1,2	TH103-2

AF Ass'y (GWK-229)



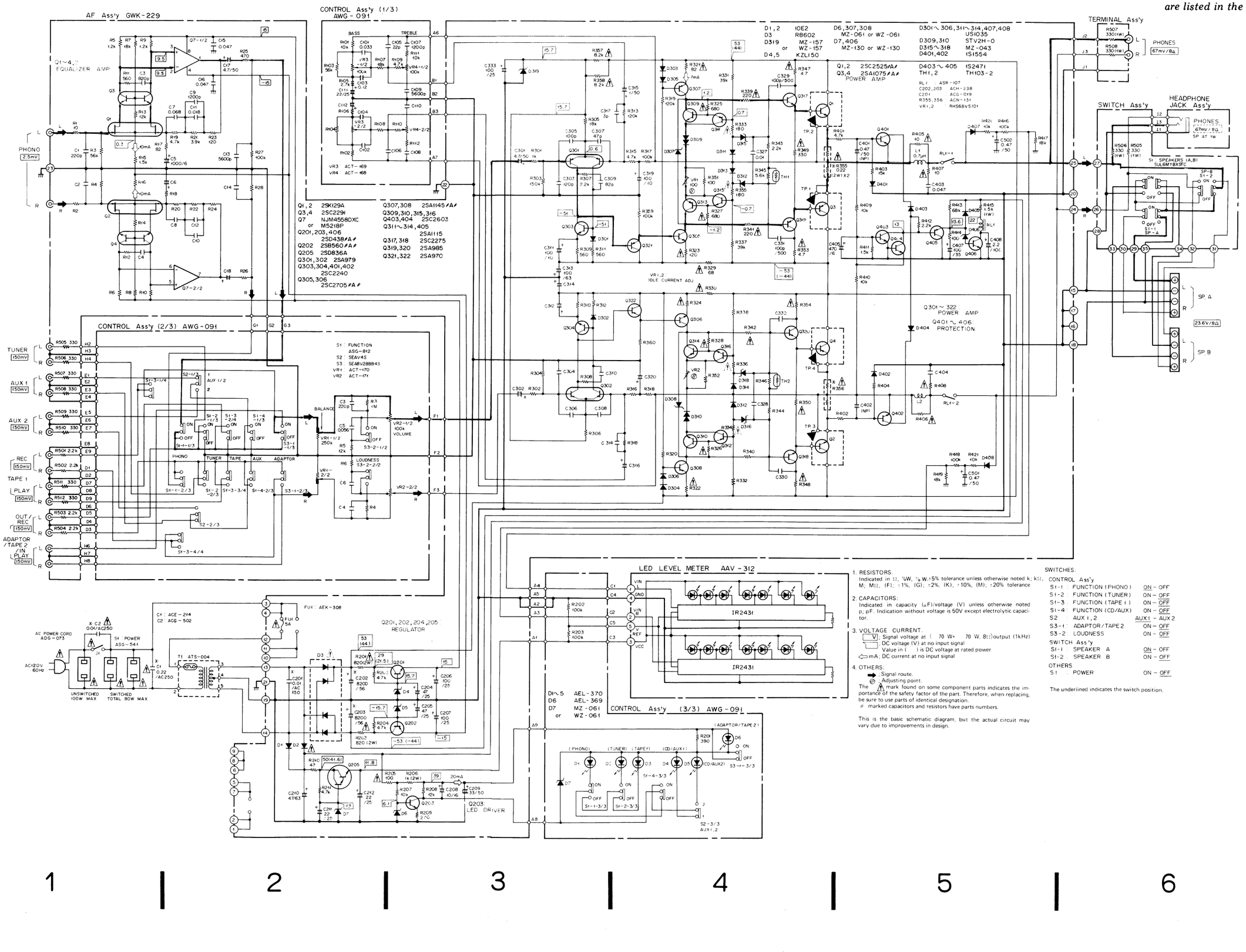


TERMINAL Ass'y



7. SCHEMATIC DIAGRAM

NOTE:
The indicated semiconductors are representati
only. Other alternative semiconductors may be
are listed in the parts list.



1. RESISTORS:
Indicated in Ω, ¼W, ⅛ W ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K), ±10%, (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
[V]; Signal voltage at (70 W+ 70 W, 8Ω) output (1kHz)
[ ]; DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA; DC current at no input signal

4. OTHERS:
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

CONTROL Ass'y		
S1-1 : FUNCTION (PHONO)		ON – OFF
S1-2 : FUNCTION (TUNER)		ON – OFF
S1-3 : FUNCTION (TAPE 1)		ON – OFF
S1-4 : FUNCTION (CD/AUX)		ON – OFF
S2 : AUX 1,2		AUX 1 – AUX 2
S3-1 : ADAPTOR/TAPE 2		ON – OFF
S3-2 : LOUDNESS		ON – OFF
SWITCH Ass'y		
S1-1 : SPEAKER A		ON – OFF
S1-2 : SPEAKER B		ON – OFF
OTHERS		
S1 : POWER		ON – OFF

The underlined indicates the switch position.

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

D1,2 10E2
D3 RB602
D3I9 or MZ-157 / WZ-157
D4,5 KZL150

D6,307,308 MZ-061 or WZ-061
D7,406 MZ-130 or WZ-130

D301~306,311~314,407,408 US1035
D309,310 STV2H-0
D315~318 MZ-043
D401,402 1S1554

Q1,2 2SC2525A/
Q3,4 2SA1075A/
POWER AMP

D403~405 1S2471
TH1,2 TH103-2

RLY : ASR-107
C202,203 : ACH-238
C201 : ACG-019
R355,356 : ACN-131
VR1,2 : RH568V5101

1. RESISTORS.
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K), ±10%, (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
V: Signal voltage at (70 W+ 70 W, 8Ω)output (1kHz)
DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
mA; DC current at no input signal

4. OTHERS:
: Signal route.
: Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

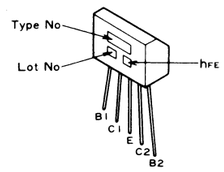
SWITCHES.

CONTROL Ass'y		
S1-1	FUNCTION (PHONO)	ON – OFF
S1-2	FUNCTION (TUNER)	ON – OFF
S1-3	FUNCTION (TAPE1)	ON – OFF
S1-4	FUNCTION (CD/AUX)	ON – OFF
S2	AUX1,2	AUX1 – AUX2
S3-1	ADAPTOR/TAPE2	ON – OFF
S3-2	LOUDNESS	ON – OFF
SWITCH Ass'y		
S1-1	SPEAKER A	ON – OFF
S1-2	SPEAKER B	ON – OFF
OTHERS		
S1	POWER	ON – OFF

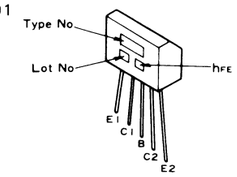
The underlined indicates the switch position.

External Appearance of Transistors and IC's

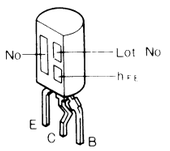
2SA979



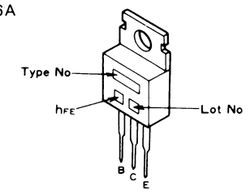
2SC2291



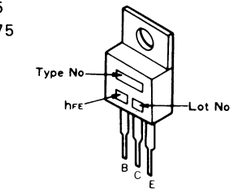
2SA1145/A/
2SC2705/A/



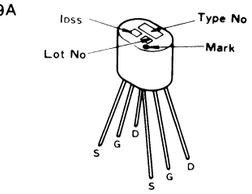
2SD836A



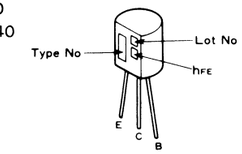
2SA985
2SC2275



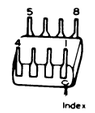
2SK129A



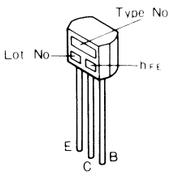
2SA970
2SC2240



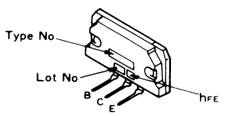
NJM4558DXC
M5218P



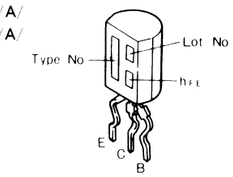
2SA1115
2SC2603



2SC2525/A/
2SA1075/A/



2SB560/A/
2SD438/A/



8. ELECTRICAL PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 x 10¹*	*561*	*RD¼PS 5 6 1 J*
47kΩ	*47 x 10³*	*473*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 x 100*	*5621*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number , temperature, humidity, etc.

Miscellaneous Parts

Mark	Part No.	Symbol & Description
	GWK-229	AF ass'y
		Headphone jack ass'y
		Switch ass'y
		Terminal ass'y
	AWG-091	Control ass'y
	AAV-312	LED level display
	AKE-105	Terminal (SPEAKERS)
⚠ ★	ATS-004	T1 Power transformer (120V)
⚠ ★★	AEK-308	FU1 Fuse (5A)
★★	2SC2525/A/-B* (2SC2525/A/-G) (2SC2525/A/-X)	Q1, Q2
★★	2SA1075/A/-B* (2SA1075/A/-G) (2SA1075/A/-X)	Q3, Q4
	*hfe of Q1—Q4 should have the same value.	
⚠ ★★	ASG-541 (ASG-539)	S1 Push switch (POWER)
⚠	ACE-214	C1 Capacitor (0.22/AC125V)
⚠	ACG-502	C2 Capacitor (0.01/AC125V)
⚠	AKP-501	AC socket (AC OUTLETS)
⚠	ADG-073	AC power cord

AF Assembly (GWK-229)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	NJM4558DXC (M5218P)	Q7
★★	2SK129A	Q1, Q2
★★	2SC2291	Q3, Q4
★★	2SA979	Q301, Q302
★★	2SA1145/A/	Q307, Q308
★★	2SC2705/A/	Q305, Q306
★★	2SA985-P* (2SA785-Q)	Q319, Q320
★★	2SC2275-P* (2SC2275-Q)	Q317, Q318
	*hfe of Q317—Q320 should have the same value.	
★★	2SD836A	Q205
★★	2SB560/A/	Q202
★★	2SD438/A/	Q201, Q203, Q406
★★	2SA970	Q321, Q322
★★	2SC2240	Q303, Q304, Q401, Q402
★★	2SA1115	Q311, Q312, Q313, Q314, Q405
★★	2SC2603	Q309, Q310, Q315, Q316, Q403, Q404
⚠ ★	RB602	D3
⚠ ★	10E2	D1, D2
★	STV2H-O	D309, D310
★	TH103-2	TH1, TH2
★	MZ-043	D315, D316, D317, D318
★	MZ-061 (WZ-061)	D6, D307, D308
★	MZ-130	D7, D406
★	MZ-157 (WZ-157)	D319
★	KZL150	D4, D5
★	US1035	D301—D306, D311—D314, D407, D408
★	1S1554	D401, D402
★	1S2471	D403, D404, D405

CAPACITORS

Mark	Part No.	Symbol & Description
	ACH-238	C202, C203 Electrolytic (8200/56V)
	CEA 101M 63L	C313, C314
	CEA 102M 6L	C5, C6
	ACG-019	C201 Ceramic (0.01/AC150V)
	CEANP R47M 50	C401, C402
	CEA R47M 50L	C501, C502
	CEA 100M 16L	C208
	CEA 101M 10L	C311, C312, C319, C320
	CEA 101M 35L	C407
	CEA 101M 25L	C206, C207, C333
	CEA 2R2M 100L	C408
	CEA 220M 25L	C211, C212
	CEA 330M 50L	C209
	CEA 470M 25L	C204, C205
	CEA 470M 63L	C210
	CEA 471M 6L	C405
	CEANL 010M 50	C315, C316
	CEANL 4R7M 50	C17, C18, C301, C302
	CQMA 562K 50	C13, C14
	CQMA 103K 50	C327, C328
	CQMA 473K 50	C403, C404
	CQMA 122J 50	C9, C10
	CQMA 183J 50	C11, C12
	CQMA 683J 50	C7, C8
	CCDSL 101K 500	C329, C330, C331, C332
	CCDSL 030C 50	C317, C318
	CCDSL 470J 50	C307, C308
	CCDSL 121J 50	C303, C304
	CCDSL 820J 50	C309, C310
	CCDSL 221J 50	C1, C2
	CCDSL 101J 50	C305, C306
	CKDYB 821K 50	C3, C4
	CKDYF 473Z 50	C15, C16

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	ACN-131	R355, R356 Wire wound (0.22/2WX2)
	RHS6BVS101	VR1, VR2 Semifixed (100)
	RS1L □□□J	R415
	RS2L □□□J	R201, R203, R206
	RD1/8 PM □□□J	R307, R308, R351, R352, R401—R404, R409—R411, R413, R416—R421, R501—R512
⚠	RD¼ PMF □□□J	R210, R333—R336
⚠	RD¼ PMFL □□□J	R321—R328, R347, R348, R353, R354, R357, R358, R405—R408
⚠	RFA¼ PS □□□J	R205, R329, R330, R339—R342, R349, R350
	RD¼PM □□□J	Other resistors

OTHERS

Mark	Part No.	Symbol & Description
	AKB-093	Terminal
	AKB-094	Terminal
	AKB-095	Terminal
	AKH-017	TR socket
	ASR-107	RL1 Relay
	PBZ30P060PMC	Screw (3x6)

Headphone Jack Assembly

Mark	Part No.	Symbol & Description
	AKN-045	Phone jack

Switch Assembly

Mark	Part No.	Symbol & Description
	SUL6MYBXSFC	S1 Push switch
	RS1L331J	R505, R506

Terminal Assembly

Mark	Part No.	Symbol & Description
	AKB-093	Terminal
	RS1L331J	R507, R508

Control Assembly (AWG-091)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★	AEL-370	D1—D5 LED (Green)
★	AEL-369	D6 LED (Orange)
★	MZ-061 (WZ-061)	D7

SWITCHES

Mark	Part No.	Symbol & Description
★★	ASG-812	S1 Push switch (FUNCTION)
★★	SEA8V2BBB4S	S3 Push switch (LOUDNESS, ADAPTOR/TAPE2)
★★	SEAV4S	S2 Push switch (AUX1/2)

CAPACITORS

Mark	Part No.	Symbol & Description
	CCDSL 221J 50	C3, C4
	CQMLA 124K 50	C103, C104
	CQSA 220J 50	C105, D106
	CQMA 122K 50	C107, C108
	CQMA 562K 50	C109, C110
	CQMA 333K 50	C101, C102
	CQMA 563K 50	C5, C6
	CEA 220M 25L	C111, C112

CAPACITORS

Mark	Part No.	Symbol & Description
	ACH-238	C202, C203 Electrolytic (8200/56V)
	CEA 101M 63L	C313, C314
	CEA 102M 6L	C5, C6
	ACG-019	C201 Ceramic (0.01/AC150V)
	CEANP R47M 50	C401, C402
	CEA R47M 50L	C501, C502
	CEA 100M 16L	C208
	CEA 101M 10L	C311, C312, C319, C320
	CEA 101M 35L	C407
	CEA 101M 25L	C206, C207, C333
	CEA 2R2M 100L	C408
	CEA 220M 25L	C211, C212
	CEA 330M 50L	C209
	CEA 470M 25L	C204, C205
	CEA 470M 63L	C210
	CEA 471M 6L	C405
	CEANL 010M 50	C315, C316
	CEANL 4R7M 50	C17, C18, C301, C302
	CQMA 562K 50	C13, C14
	CQMA 103K 50	C327, C328
	CQMA 473K 50	C403, C404
	CQMA 122J 50	C9, C10
	CQMA 183J 50	C11, C12
	CQMA 683J 50	C7, C8
	CCDSL 101K 500	C329, C330, C331, C332
	CCDSL 030C 50	C317, C318
	CCDSL 470J 50	C307, C308
	CCDSL 121J 50	C303, C304
	CCDSL 820J 50	C309, C310
	CCDSL 221J 50	C1, C2
	CCDSL 101J 50	C305, C306
	CKDYB 821K 50	C3, C4
	CKDYF 473Z 50	C15, C16

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	ACN-131	R355, R356 Wire wound (0.22/2WX2)
	RHS6BVS101	VR1, VR2 Semifixed (100)
	RS1L □□□J	R415
	RS2L □□□J	R201, R203, R206
	RD1/8 PM □□□J	R307, R308, R351, R352, R401 –R404, R409–R411, R413, R416–R421, R501–R512
⚠	RD¼ PMF □□□J	R210, R333–R336
⚠	RD¼ PMFL □□□J	R321–R328, R347, R348, R353, R354, R357, R358, R405–R408
⚠	RFA¼ PS □□□J	R205, R329, R330, R339–R342, R349, R350
	RD¼PM □□□J	Other resistors

OTHERS

Mark	Part No.	Symbol & Description
	AKB-093	Terminal
	AKB-094	Terminal
	AKB-095	Terminal
	AKH-017	TR socket
	ASR-107	RL1 Relay
	PBZ30P060PMC	Screw (3x6)

Headphone Jack Assembly

Mark	Part No.	Symbol & Description
	AKN-045	Phone jack

Switch Assembly

Mark	Part No.	Symbol & Description
	SUL6MYBXSFC	S1 Push switch
	RS1L331J	R505, R506

Terminal Assembly

Mark	Part No.	Symbol & Description
	AKB-093	Terminal
	RS1L331J	R507, R508

Control Assembly (AWG-091)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★	AEL-370	D1–D5 LED (Green)
★	AEL-369	D6 LED (Orange)
★	MZ-061 (WZ-061)	D7

SWITCHES

Mark	Part No.	Symbol & Description
★★	ASG-812	S1 Push switch (FUNCTION)
★★	SEA8V2BBB4S	S3 Push switch (LOUDNESS, ADAPTOR/TAPE2)
★★	SEAV4S	S2 Push switch (AUX1/2)

CAPACITORS

Mark	Part No.	Symbol & Description
	CCDSL 221J 50	C3, C4
	CQMLA 124K 50	C103, C104
	CQSA 220J 50	C105, D106
	CQMA 122K 50	C107, C108
	CQMA 562K 50	C109, C110
	CQMA 333K 50	C101, C102
	CQMA 563K 50	C5, C6
	CEA 220M 25L	C111, C112

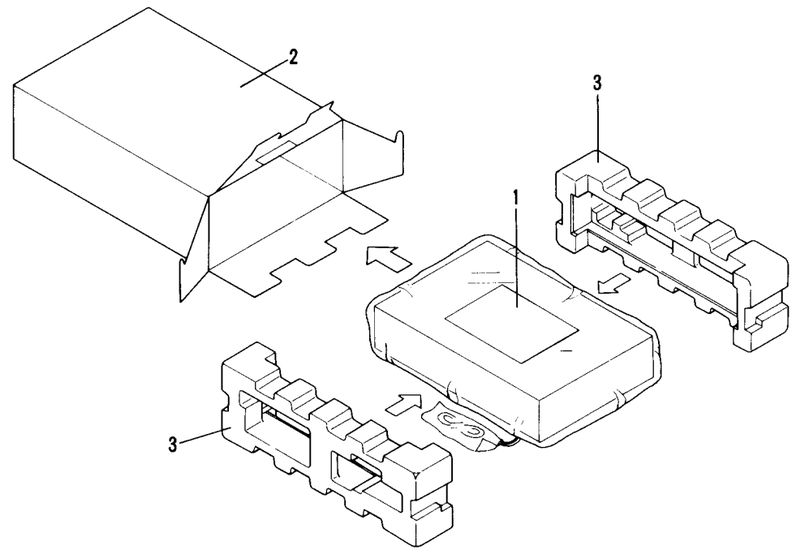
RESISTOR

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	RD¼ PM □□□J	R3–R6, R101–R112, R201–R203
	ACT-170	VR1 Variable (BALANCE, 250k)
	ACT-171	VR2 Variable (VOLUME, 100k)
	ACT-169	VR3 Variable (BASS, 100k)
	ACT-168	VR4 Variable (TREBLE, 100k)

9. PACKING

Mark	No.	Part No.	Description
	1.	ARB-544	Operating instructions
	2.	AHE-217	Packing case
	3.	AHA-340	Front rear pad

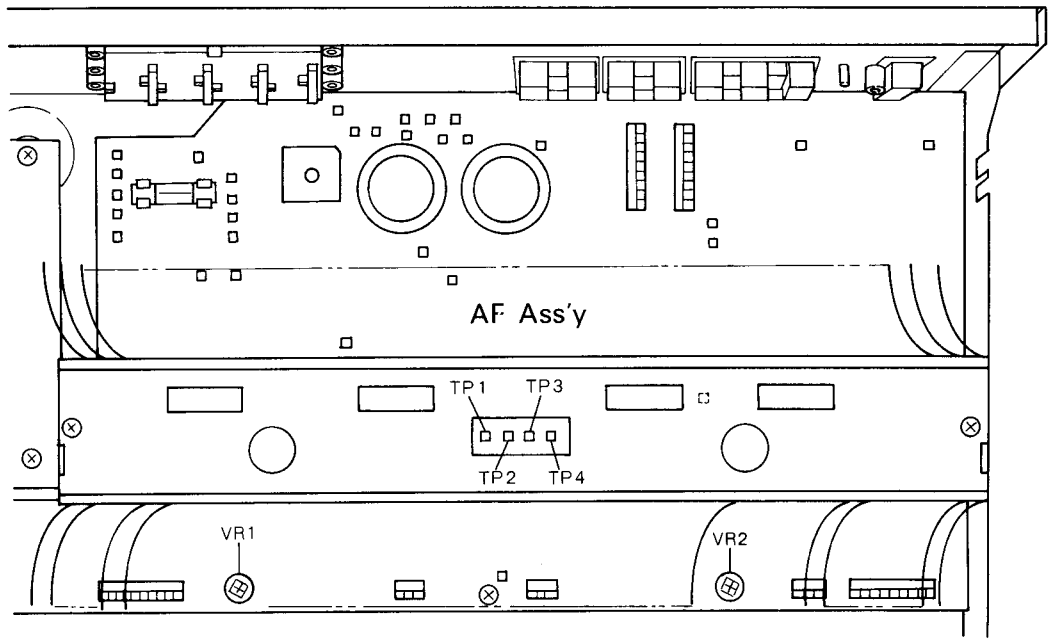


10. ADJUSTMENTS

Idle Current Adjustment

- Turn VR1 (L) and VR2 (R) fully around in the counter-clockwise direction.
- Without any load or input signal, turn POWER switch ON and let stand for 10 minutes.

Adjustment point	Prescribed value	Measuring terminal
VR1 (L)	8.6mV~21.8mV	TP2 (+) and TP1 (–)
VR2 (R)	8.6mV~21.8mV	TP3 (+) and TP4 (–)

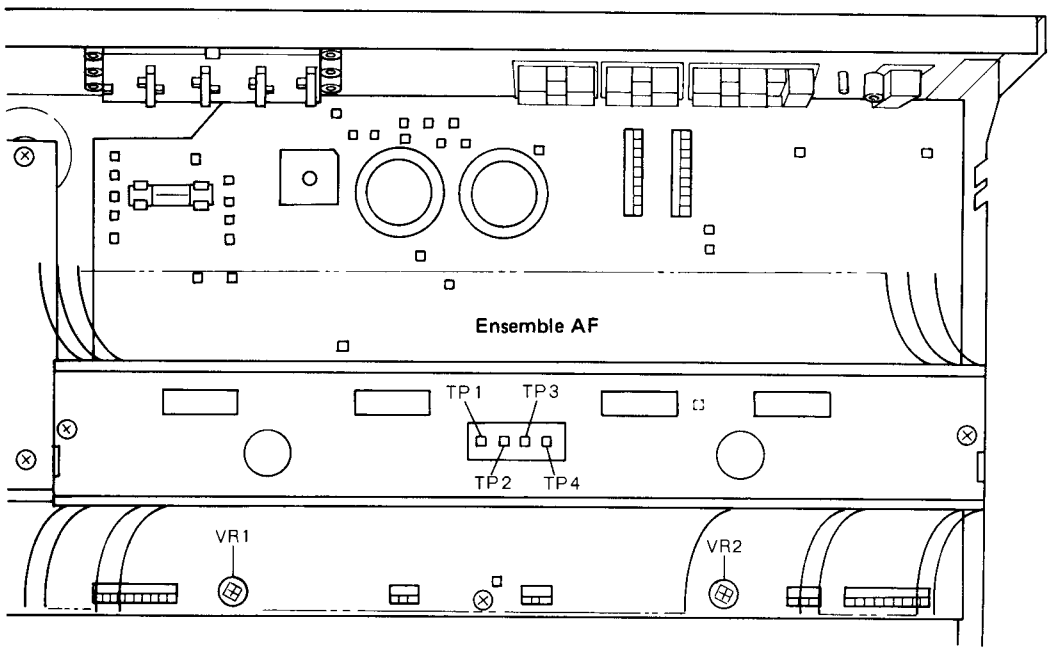


10. RÉGLAGE

Réglage du courant déwatté

- Tourner à fond VR1 (L, gauche) et VR2 (R, droite) en sens inverse des aiguilles d'une montre.
- Sand charge ni signal d'entrée, allumer l'interrupteur POWER et le maintenir 10 minutes.

Point de réglage	Valeur prescrite	Terminal de mesure
VR 1 (L)	8,6mV~21.8mV	TP2 (+) et TP2 (–)
VR2 (R)	8,6mV~21,8mV	TP3 (+) et TP4 (–)

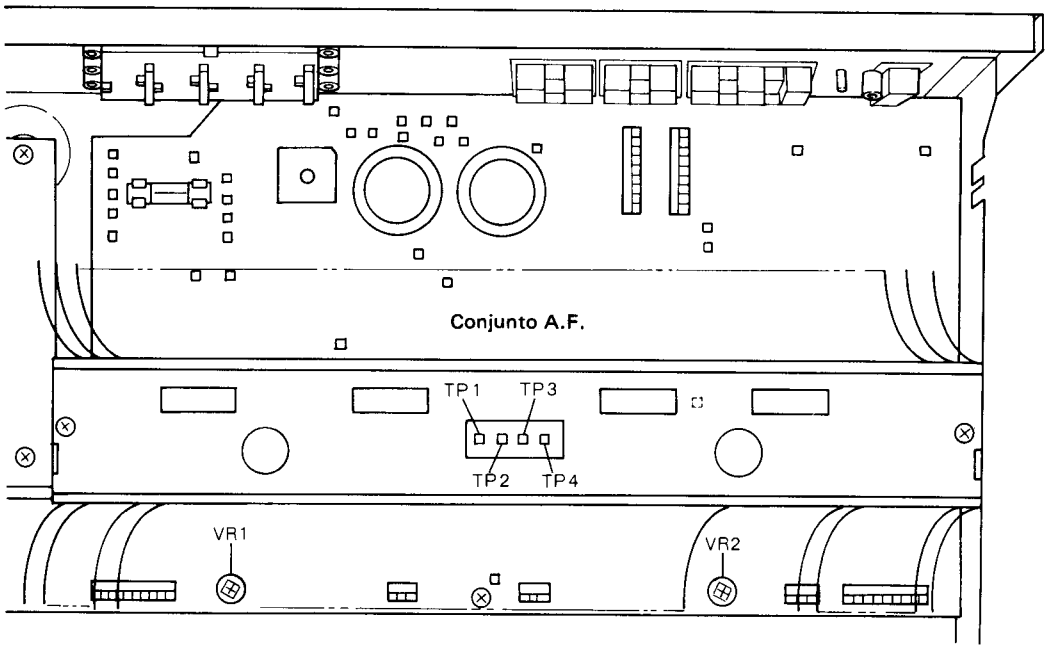


10. AJUSTE

Ajuste de la corriente la corriente devatiada

- Girar la VR1 (L, izquierda) VR2 (R, derecha) totalmente en la dirección hacia la izquierda.
- Sin ninguna carga o señal de entrada, girar el interruptor de la alimentación (POWER) a ON y manténgalo por 10 minutos.

Punto de ajuste	Valor determinado	Terminal de medida
VR1 (L)	8,6mV~21,8mV	TP12 (+) y TP1 (–)
VR2 (R)	8,6mV~21,8mV	TP3 (+) y TP4 (–)



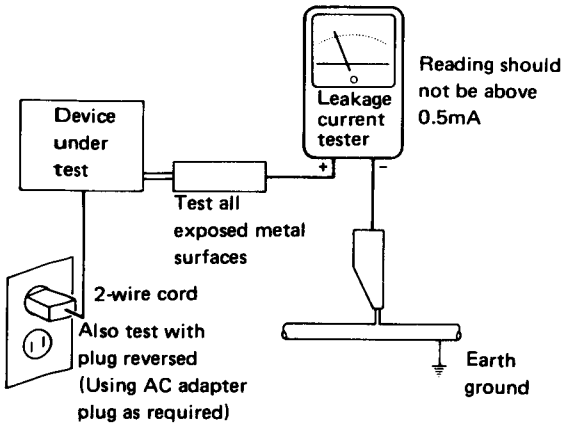
11. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service tecnician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

12. FOR HE TYPE

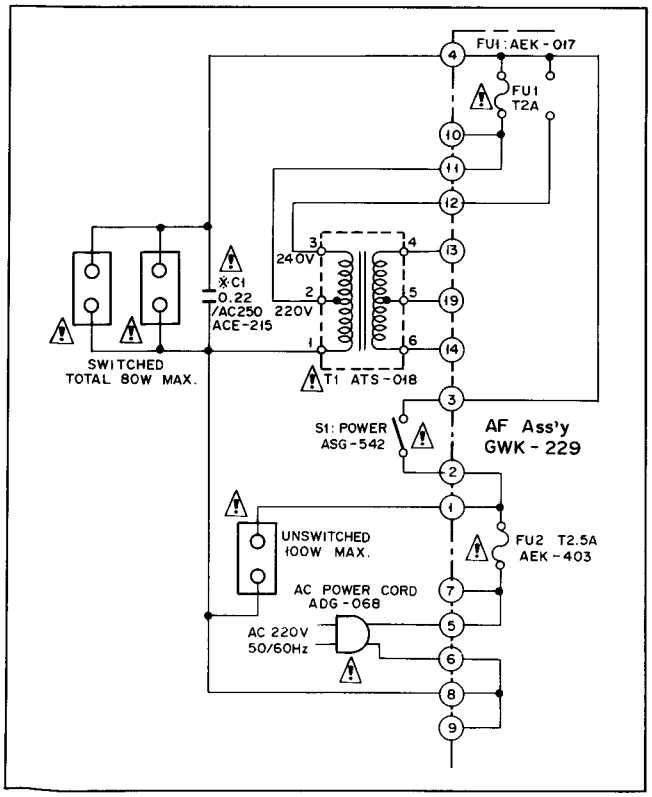
The HE type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	HE type	
⚠ ★	T1 Power transformer (120V)	ATS-004	.....	
	(220V/240V)	.....	ATS-018	
⚠ ★★	FU1 Fuse (5A)	AEK-308	.....	
	(T2A)	.....	AEK-017	
⚠ ★★	FU2 Fuse (T2.5A)	.....	AEK-403	
⚠ ★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 (0.22/AC125V)	ACE-214	.....	
⚠	(0.22/AC250V)	.....	ACE-215	
	C2 (0.01/AC125V)	ACG-502	.....	
⚠	AC socket (AC OUTLETS)	AKP-501	AKP-502	
⚠	AC power cord	ADG-073	ADG-068	
	Operating instructions			
	(English)	ARB-544	.....	
	(English/French/German/Itarian)	.....	ARE-066	
	Packing case	AHE-217	AHE-192	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR HE TYPE



Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Take out the fuse (AEK-017) from the fuse assembly.
4. Re-install the fuse in the correct voltage indication (see Fig. 1).
5. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

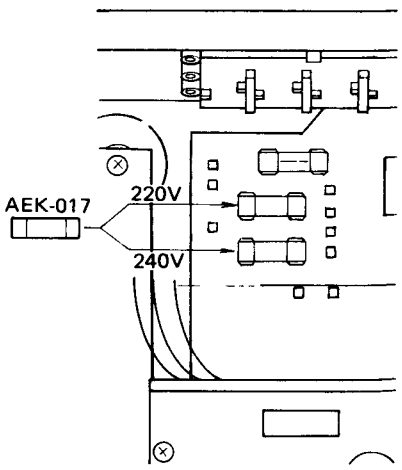


Fig. 1

13. FOR HB TYPE

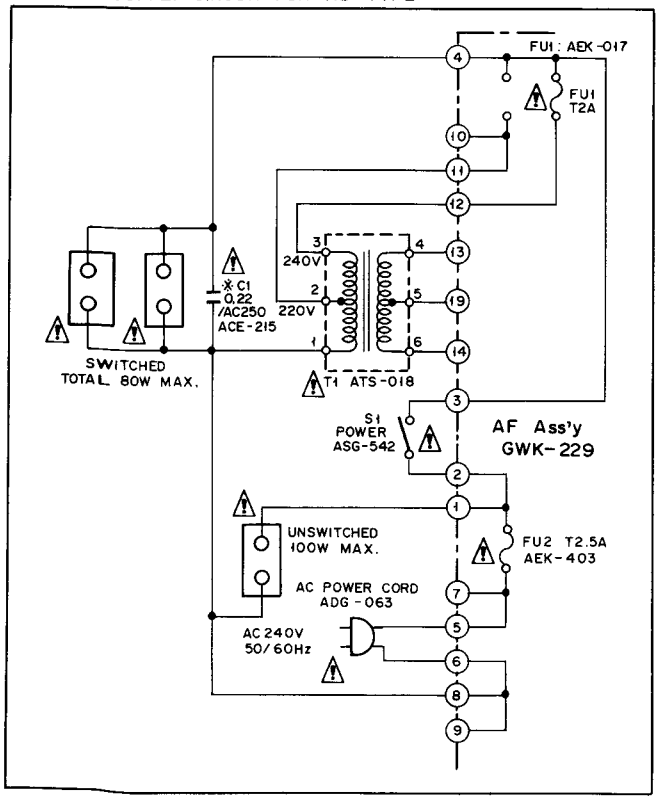
The HB type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	HB type	
⚠ ★	T1 Power transformer (120V)	ATS-004	.....	
	(220V/240V)	.....	ATS-018	
⚠★★	FU1 Fuse (5A)	AEK-308	.....	
	(T2A)	.....	AEK-017	
⚠★★	FU2 Fuse (T2.5A)	.....	AEK-403	
⚠★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 (0.22/AC125V)	ACE-214	.....	
⚠	(0.22/AC250V)	.....	ACE-215	
⚠	C2 (0.01/AC125V)	ACG-502	.....	
⚠	AC socket (AC OUTLETS)	AKP-501	AKP-505	
	AC power cord	ADG-073	ADG-063	
	Operating instructions (English)	ARB-544	ARB-544	
	Packing case	AHE-217	AHE-192	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR HB TYPE



Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Take out the fuse (AEK-017) from the fuse assembly.
4. Re-install the fuse in the correct voltage indication (see Fig. 1).
5. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

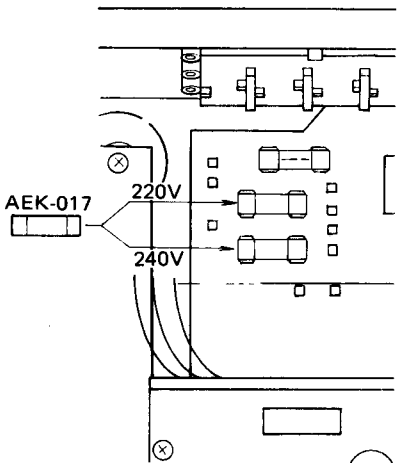


Fig. 1

14. FOR S AND S/G TYPES

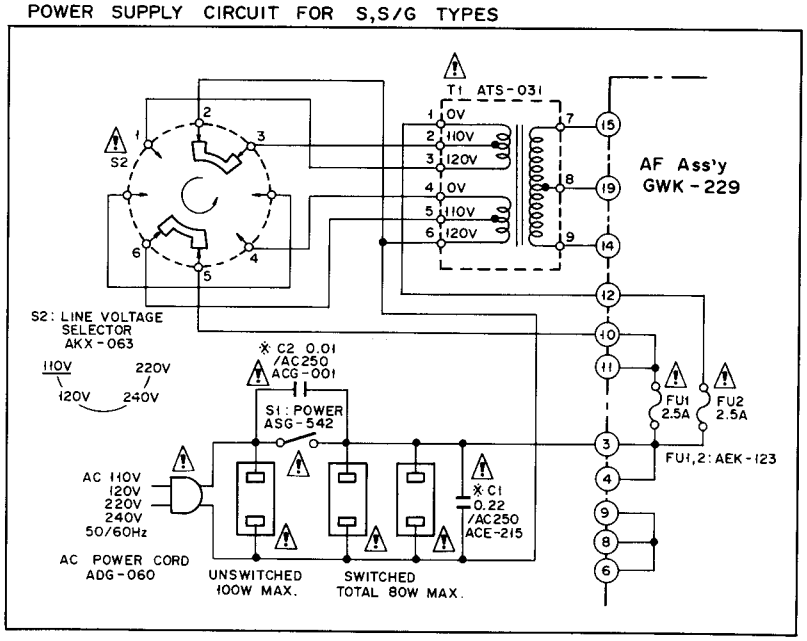
The S and S/G types are the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description		Part No.			Remarks
			KU type	S type	S/G type	
⚠ ★	T1	Power transformer (120V)	ATS-004	.....	.....	
		(110V, 120V, 220V, 240V)	.....	ATS-031	ATS-031	
⚠ ★★	FU1	Fuse (5A)	AEK-308	.....	.....	
		(2.5A)	.....	AEK-123	AEK-123	
⚠ ★★	FU2	Fuse (2.5A)	.....	AEK-123	AEK-123	
⚠	S2	Line voltage selector	.....	AKX-063	AKX-063	
⚠	C1	(0.22/AC125V)	ACE-214	.....	.....	
⚠		(0.22/AC250V)	.....	ACE-215	ACE-215	
	C2	(0.01/AC125V)	ACG-502	.....	.....	
		(0.01/AC250V)	.....	ACG-001	ACG-001	
⚠		AC power cord	ADG-073	ADG-060	ADG-060	
		Screw (3x10)	.....	MTZ30P100FZK	MTZ30P100FZK	for line voltage selector
		Operating instructions				
		(English)	ARB-544	ARB-544	ARB-544	
		(Spanish)	.....	ARC-049	.....	
		Packing case	AHE-217	AHE-192	AHE-192	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR S,S/G TYPES



15. FOR YP TYPE

The YP type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	YP type	
⚠ ★	T1 Power transformer (120V)	ATS-004	.....	
	(240V)	.....	ATS-018	
⚠★★	FU1 Fuse (5A)	AEK-308	.....	
	(2A)	.....	AEK-017	
⚠★★	S1 Push switch (POWER)	ASG-541	ASG-542	
⚠	C1 (0.22/AC250V)	ACE-214	.....	
	(0.01/AC250V)	.....	ACG-001	
⚠	C2 (0.01/AC125V)	ACG-502	.....	
⚠	AC socket (AC OUTLETS)	AKP-501	.....	
⚠	AC power cord	ADG-073	ADG-064	
	Packing case	AHE-217	AHE-192	

Schematic Diagram

POWER SUPPLY CIRCUIT FOR YP TYPE